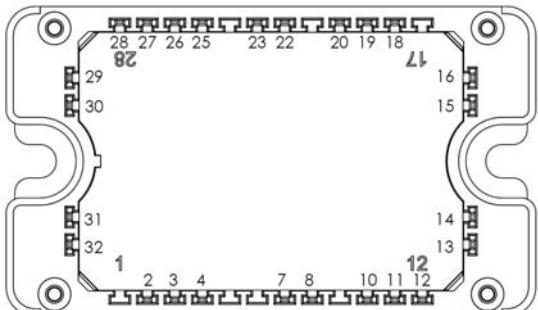
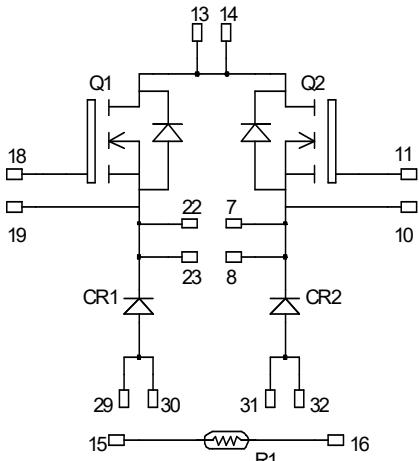


**Dual Buck chopper
MOSFET Power Module**

$V_{DSS} = 100V$
 $R_{DSon} = 19m\Omega$ typ @ $T_j = 25^\circ C$
 $I_D = 70A$ @ $T_c = 25^\circ C$



All multiple inputs and outputs must be shorted together
 Example: 13/14 ; 29/30 ; 22/23 ...

All ratings @ $T_j = 25^\circ C$ unless otherwise specified

Absolute maximum ratings (per MOSFET)

Symbol	Parameter		Max ratings	Unit
V_{DSS}	Drain - Source Voltage		100	V
I_D	Continuous Drain Current	$T_c = 25^\circ C$	70	A
		$T_c = 80^\circ C$	50	
I_{DM}	Pulsed Drain current		300	
V_{GS}	Gate - Source Voltage		± 30	V
R_{DSon}	Drain - Source ON Resistance		21	$m\Omega$
P_D	Power Dissipation	$T_c = 25^\circ C$	208	W
I_{AR}	Avalanche current (repetitive and non repetitive)		75	A
E_{AR}	Repetitive Avalanche Energy		30	mJ
E_{AS}	Single Pulse Avalanche Energy		1500	

 **CAUTION:** These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.

Electrical Characteristics (per MOSFET)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0V, V _{DS} = 100V			250	µA
R _{D(on)}	Drain – Source on Resistance	V _{GS} = 10V, I _D = 35A		19	21	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} = V _{DS} , I _D = 1mA	2		4	V
I _{GSS}	Gate – Source Leakage Current	V _{GS} = ±30 V, V _{DS} = 0V			±100	nA

Dynamic Characteristics (per MOSFET)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1MHz		5100		pF
C _{oss}	Output Capacitance			1900		
C _{rss}	Reverse Transfer Capacitance			800		
Q _g	Total gate Charge	V _{GS} = 10V V _{Bus} = 100V I _D = 70A		200		nC
Q _{gs}	Gate – Source Charge			40		
Q _{gd}	Gate – Drain Charge			92		
T _{d(on)}	Turn-on Delay Time	Inductive switching @ 125°C V _{GS} = 15V V _{Bus} = 66V I _D = 70A R _G = 5Ω		35		ns
T _r	Rise Time			70		
T _{d(off)}	Turn-off Delay Time			95		
T _f	Fall Time			125		
E _{on}	Turn-on Switching Energy	Inductive switching @ 25°C V _{GS} = 15V, V _{Bus} = 66V I _D = 70A, R _G = 5Ω		276		µJ
E _{off}	Turn-off Switching Energy			302		
E _{on}	Turn-on Switching Energy	Inductive switching @ 125°C V _{GS} = 15V, V _{Bus} = 66V I _D = 70A, R _G = 5Ω		304		µJ
E _{off}	Turn-off Switching Energy			320		
R _{thJC}	Junction to Case Thermal Resistance				0.6	°C/W

Chopper diode ratings and characteristics (per diode)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit	
V _{RRM}	Peak Repetitive Reverse Voltage				200	V	
I _{RM}	Reverse Leakage Current	V _R =200V			250	µA	
I _F	DC Forward Current		T _c = 80°C	60		A	
V _F	Diode Forward Voltage	I _F = 60A		1.1		V	
		I _F = 120A		1.4			
		I _F = 60A	T _j = 125°C	0.9			
t _{rr}	Reverse Recovery Time	I _F = 60A V _R = 133V di/dt =200A/µs	T _j = 25°C	31		ns	
			T _j = 125°C	60			
Q _{rr}	Reverse Recovery Charge		T _j = 25°C	60		nC	
			T _j = 125°C	250			
R _{thJC}	Junction to Case Thermal Resistance				0.9	°C/W	

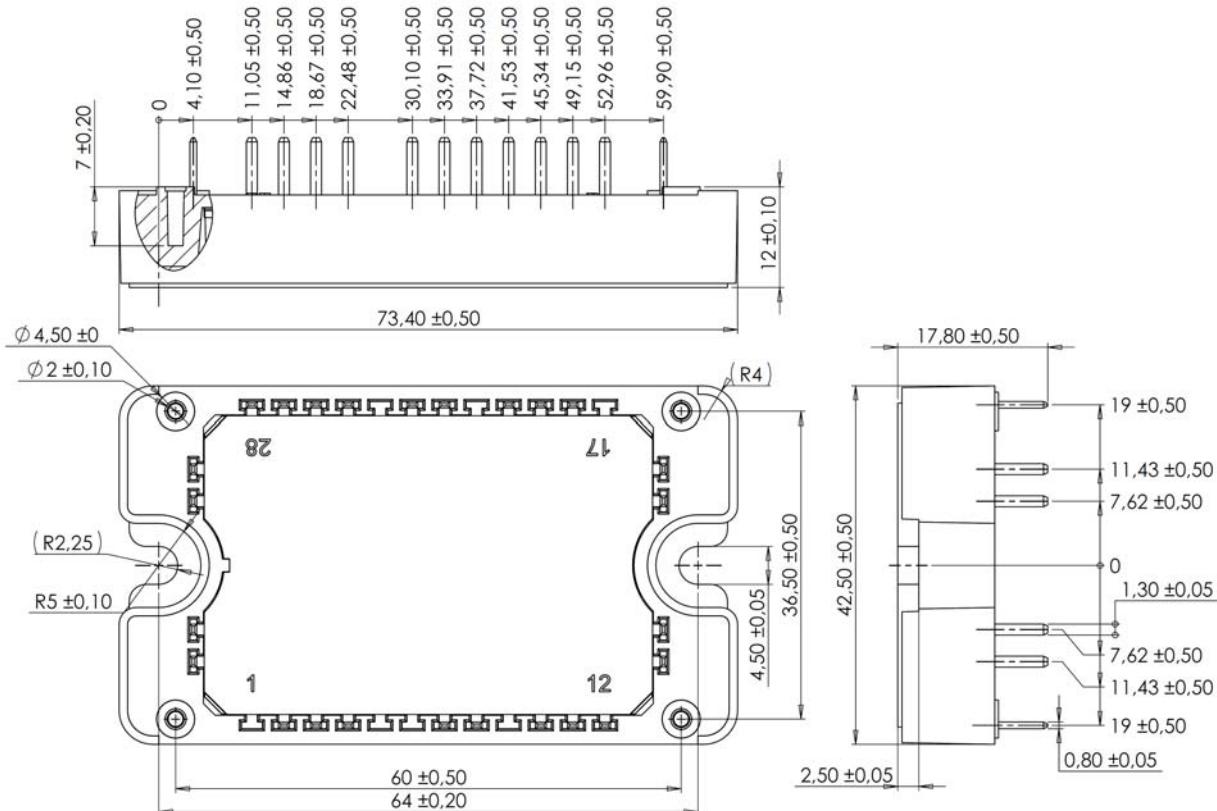
Thermal and package characteristics

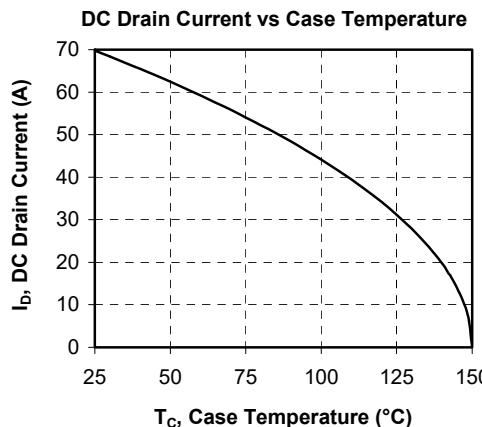
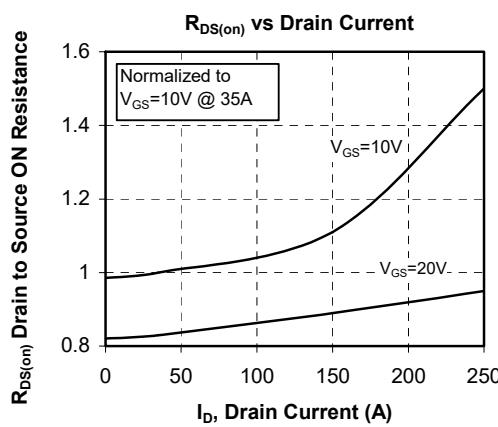
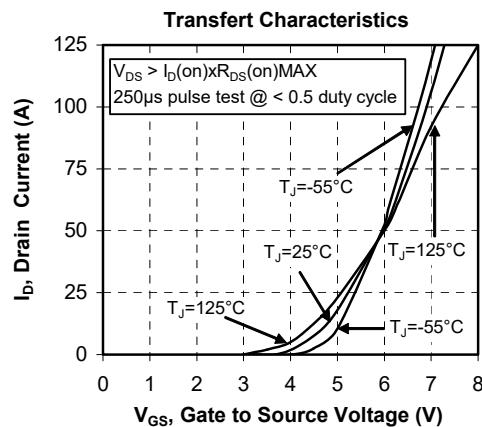
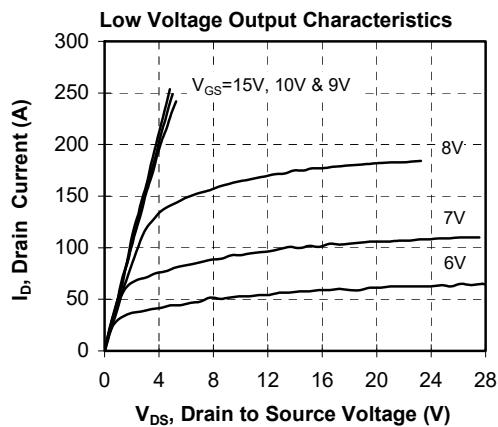
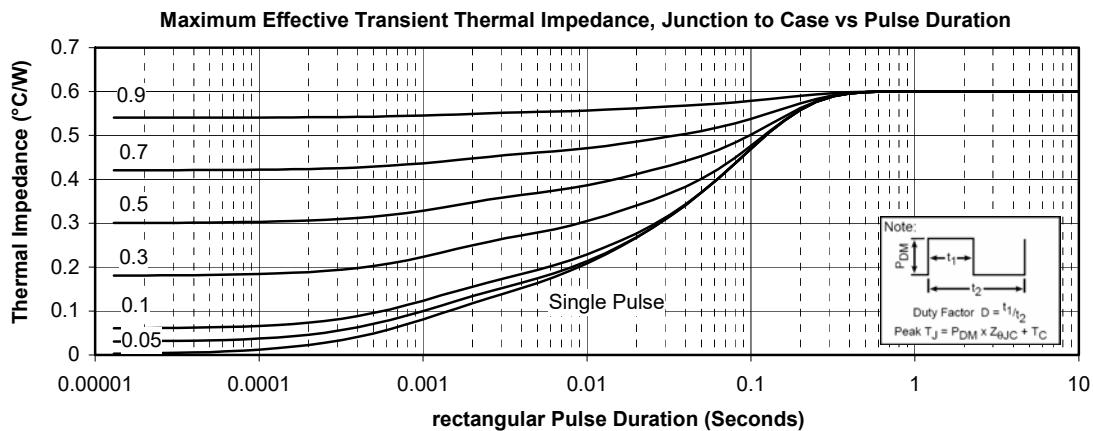
Symbol	Characteristic		Min	Max	Unit
V_{ISOL}	RMS Isolation Voltage, any terminal to case $t = 1$ min, 50/60Hz		4000		V
T_J	Operating junction temperature range		-40	150	
T_{JOP}	Recommended junction temperature under switching conditions		-40	$T_{Jmax} - 25$	$^{\circ}C$
T_{STG}	Storage Temperature Range		-40	125	
T_C	Operating Case Temperature		-40	125	
Torque	Mounting torque	To heatsink M4	2	3	N.m
Wt	Package Weight			110	g

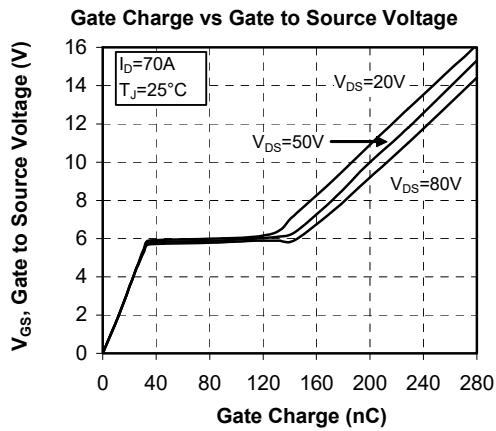
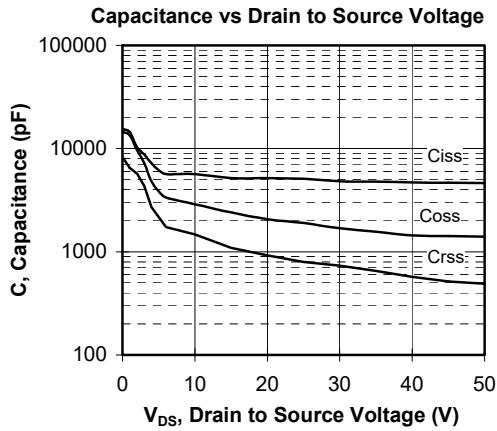
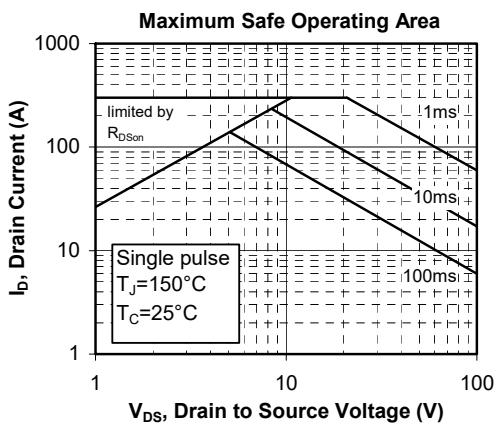
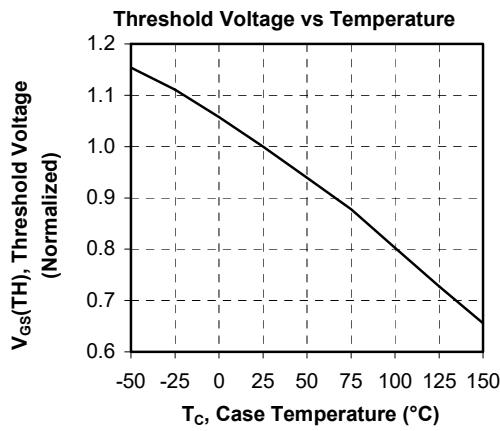
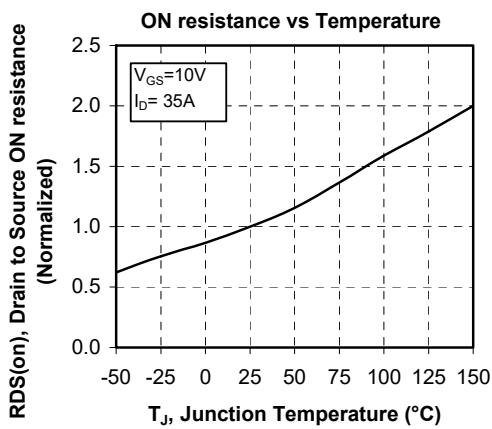
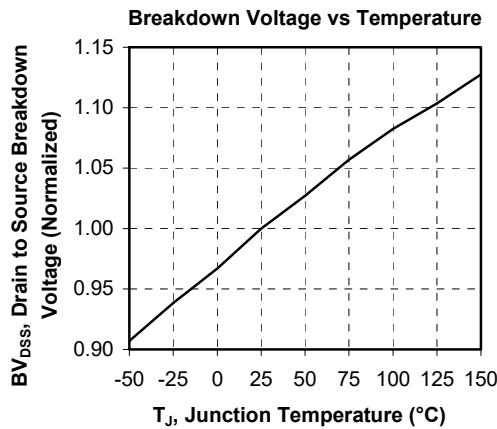
Temperature sensor NTC (see application note APT0406 on www.microsemi.com for more information).

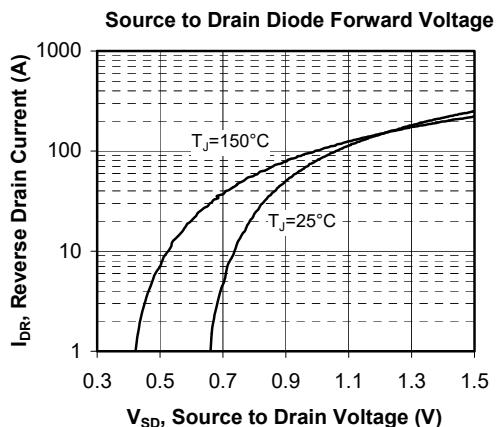
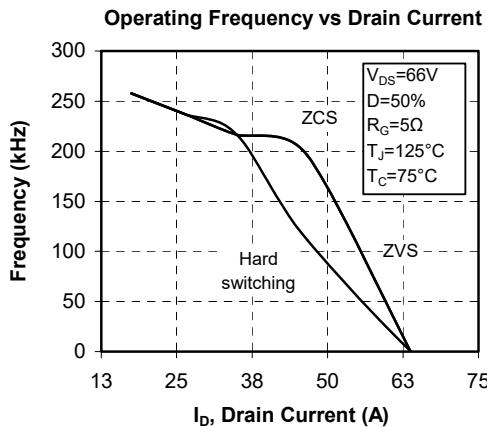
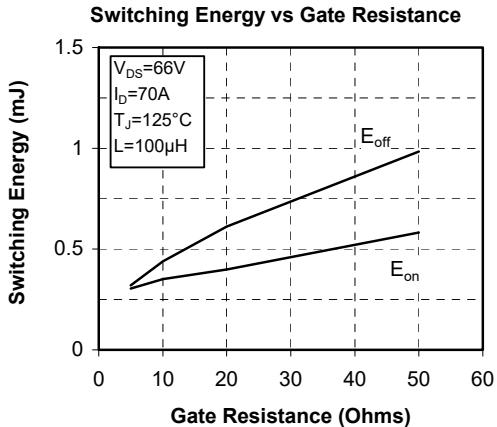
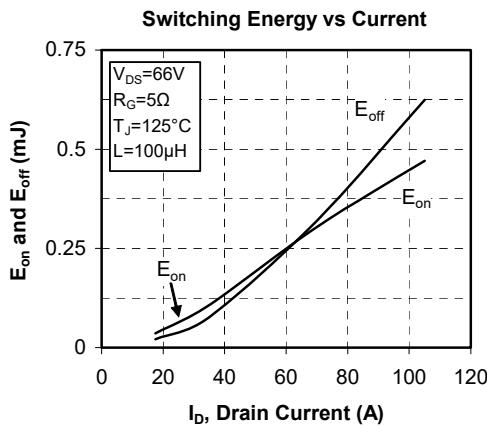
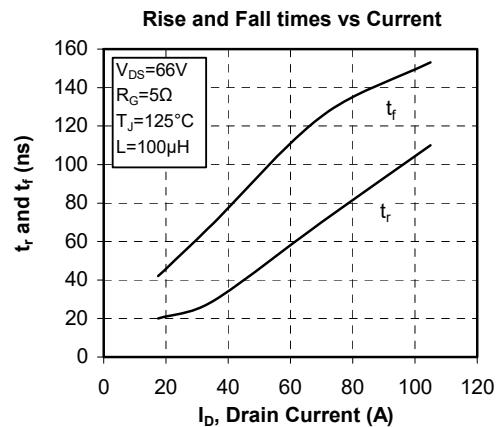
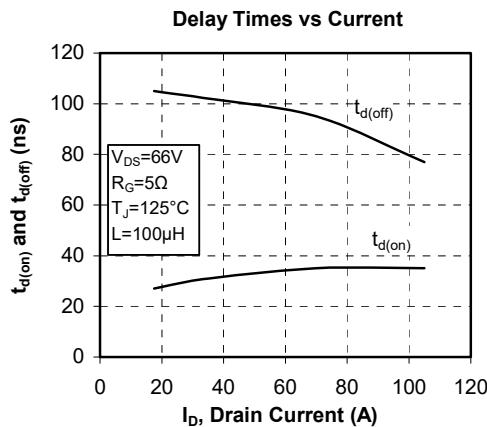
Symbol	Characteristic		Min	Typ	Max	Unit
R_{25}	Resistance @ 25°C			50		k Ω
$\Delta R_{25}/R_{25}$				5		%
$B_{25/85}$	$T_{25} = 298.15$ K			3952		K
$\Delta B/B$		$T_C=100^{\circ}C$		4		%

$$R_T = \frac{R_{25}}{\exp\left[B_{25/85}\left(\frac{1}{T_{25}} - \frac{1}{T}\right)\right]} \quad \begin{matrix} T: \text{Thermistor temperature} \\ R_T: \text{Thermistor value at } T \end{matrix}$$

Package outline (dimensions in mm)

 See application note 1906 - Mounting Instructions for SP3F Power Modules on www.microsemi.com

Typical Performance Curve






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